

Plant Evaluation Notes

A Report on *Leucanthemum* × *superbum* and Related Daisies

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Shasta daisy (*Leucanthemum* × *superbum*) is prized for the simplicity of its bright white, yellow-eyed flowers and its long season of bloom. Its quiet charm allures gardeners and nongardeners alike—perhaps due to nostalgia for summers past, memories of a hopeful game of “loves me, love me not” or simply the cheery blossoms that shine in the summer garden. New cultivars introduced in recent years have surpassed many of the earliest cultivars, ensuring a place in contemporary gardens for the venerable Shasta daisy.

Leucanthemum × *superbum*, a reputed hybrid between *L. lacustre* and *L. maximum*, was introduced by Luther Burbank in 1901, and named Shasta daisy for the snowy peaks of Mount Shasta in northern California. Surprisingly, given the simple nature of Shasta daisy, the RHS Plant Finder lists 69 cultivars, representing a variety of single- to double-flowered forms. While the parents of Shasta daisy are native to Europe, *L. vulgare*, oxeye daisy, is a ubiquitous native of temperate Eurasia that has naturalized in fields and roadsides in North America.

Like many members of the aster family (Asteraceae), *Leucanthemum* flowers are composed of petallike ray florets and tube-shaped disc florets. In the case of *L. ×superbum*, the showy rays are typically white. The yellow disc florets, which make up the eye of the flower, are encircled by the prominent ray florets. Floral habits vary from the classic daisy form (single row of rays) to crested or anemone-centered (perimeter disc florets are petallike and center disc florets remain yellow) to double-flowered (disc florets resemble the color and form of ray florets). Flowers may also be frilly double, marked by a profusion of narrow rays that give the blossoms a shaggy appearance. Flowers range from 2 to 5 inches in diameter and are produced from late spring throughout summer.

The basal leaves of Shasta daisy are dark green and somewhat fleshy, to 12 inches long and toothed, and semievergreen to evergreen depending on winter temperatures. Leaves are smaller and sparsely produced on flowering stems. The habit is generally bushy with erect stems up to 5 feet tall, although stems 3 feet or

shorter are more common. Single-flowered cultivars are commonly grown from seed, resulting in a degree of variability in habit, size and floral traits.

Leucanthemum vulgare, oxeye daisy, is similar in general appearance to Shasta daisy. The white and yellow flowers are typically smaller, 1 to 3½ inches wide, and bloom up to four weeks earlier. It has smaller green leaves and a rhizomatous habit. Oxeye daisy is readily available to gardeners and frequently confused with Shasta daisy. Both species self-sow in the garden, although oxeye daisy is particularly fruitful.

Shasta daisies prefer fertile, well-drained soils in full sun and are intolerant of wet or poorly drained soils at any time. Crown rot will likely occur under heavy winter mulch; a loose covering of conifer boughs, pine needles, or whole leaves applied after the ground is frozen will protect the semievergreen crowns without smothering them. Shasta daisies are generally cold hardy in USDA Zones 5-8. Since Shasta daisies are often short-lived perennials, dividing the clumps every few years will keep plants robust and may increase their life span. They benefit from regular deadheading to prolong flowering and to reduce reseeding, and taller selections may need to be staked to prevent floppiness. Shasta daisies can be troubled by aphids, spider mites, and verticillium wilt caused by poorly drained soils.

The intrinsic simplicity of the Shasta daisy flowers, whether grown singly or massed, appeals to gardeners of all ages. While gardeners enjoy their long season of bloom in summer borders, cottage gardens and meadows, bees and colorful butterflies flit capriciously above the bright-eyed blossoms. Shasta daisies are good companions to summer-bloomers such as beebalms (*Monarda*), catmints (*Nepeta*), sages (*Salvia*), and ornamental grasses. And many long-stemmed selections make excellent cut flowers.

The Evaluation Study

The Chicago Botanic Garden (USDA



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Leucanthemum × *superbum* 'Amelia'

Hardiness Zone 5b, AHS Plant Heat-Zone 5) evaluated 36 cultivars of *Leucanthemum* $\times$ *superbum* and *L. vulgare* between 1999 and 2006. The goal of the comparative trial was to identify outstanding *Leucanthemum* for northern gardens. Twenty-seven taxa completed a minimum four-year trial, although some taxa were evaluated for a longer period.

Eight plants of each taxon were grown in side-by-side plots for easy comparison. The evaluation site received approximately 10 hours of full sun during the growing season and was openly exposed to wind in all directions. The well-drained, clay-loam soil was amended with composted leaves and had a pH of 7.4 throughout the evaluation term.

Maintenance practices were kept to a minimum to simulate home garden culture. Water was provided as needed and no fertilizer was applied. Plants were routinely cut back each year in late August to rejuvenate foliage and improve plant health before the end of the growing season. Mulch consisting of shredded leaves and wood chips was placed around the plants for water conservation and weed suppression; no winter mulch was used.

Observations

The 36 taxa in the comparative trial were evaluated for ornamental traits; cultural adaptability to the soil and environmental conditions of the test site; disease and pest problems; and winter hardiness. Final ratings are based on floral display (flower production and duration of bloom); plant health and vigor; habit quality; disease and pest problems; and winter injury. Plant traits and overall ratings for the 27 taxa that completed the trial are noted in Table 1.

Nine cultivars of *Leucanthemum* $\times$ *superbum* are not included in Table 1 because they either did not finish a four-year trial or are synonyms of other cultivars. 'Barbara Bush', 'Cobham Gold', 'Crazy Daisy', 'Dwarf Snow Lady', 'Esther Read' and 'Summer Snowball' were evaluated for one or two years only. Furthermore, 'Old Court' and 'Shaggy' are considered synonyms of 'Beauté Nivelloise'; therefore, despite completing the trial, the data for these taxa are redundant. Likewise, 'Ryan's White' is probably a synonym of 'Becky', so only the data for 'Becky' is included.

Top-rated Daisies

The top-rated daisies in the trial were *Leucanthemum* $\times$ *superbum* 'Amelia', *L. xsuperbum* 'Becky', *L. vulgare* 'Filigran', and *L. vulgare* 'Maikönigin', which all received five-star excellent ratings. In each case, plants were consistently healthy with heavy flower production and robust habits throughout the evaluation period.

'Amelia' is a seed cultivar, donated by Jelitto Perennial Seeds for trialing, with strong stems and 5-inch blossoms—the largest flowers in the trial. Variability in plant height was not unexpected given the fact that 'Amelia' was grown from seed. On the other hand, 'Becky' exhibited a uniform habit with sturdy stems to 40 inches tall and an abundance of 3½-inch flowers from July to September. Fittingly, 'Becky' was named the 2003 Perennial Plant of the Year by the Perennial Plant Association.

Leucanthemum vulgare 'Filigran' and 'Maikönigin' (May Queen) were comparable in habit and floral display but were not the same size. 'Filigran' featured single, 2-inch-wide flowers on stems to 26 inches tall whereas the larger 'Maikönigin' had 3-inch flowers on stems to 36 inches tall. Both cul-

Table 1: Plant Traits and Performance Ratings

Overall Rating	<i>Leucanthemum</i>	Flower Form	Flower Size	Bloom Period	Flower Coverage ¹	Plant Height	Plant Width
★★★	$\times$ <i>superbum</i> 'Aglaiä'	frilly double	3 in.	late Jun-late Aug	fair	34 in.	36 in.
★★	$\times$ <i>superbum</i> 'Alaska'	single	4 in.	late Jun-early Sep	fair	40 in.	32 in.
★★★★★	$\times$ <i>superbum</i> 'Amelia'	single	5 in.	mid Jun-early Aug	excellent	40 in.	32 in.
★★★★	$\times$ <i>superbum</i> 'Beauté Nivelloise'	frilly double	4½ in.	late Jun-mid Aug	good	30 in.	28 in.
★★★★★	$\times$ <i>superbum</i> 'Becky'	single	3½ in.	early Jul-early Sep	excellent	40 in.	36 in.
★★★★	$\times$ <i>superbum</i> 'Exhibition'	semidouble or single	4 in.	late Jun-late Aug	good	36 in.	36 in.
★★	$\times$ <i>superbum</i> 'Fluffy'	double	3 in.	late Jun-mid Aug	good	27 in.	27 in.
★★★	$\times$ <i>superbum</i> 'Hebron Hardy'	single	3½ in.	late Jun-late Aug	good	34 in.	36 in.
★★	$\times$ <i>superbum</i> 'Marconi'	frilly semidouble	4 in.	late Jun-mid Aug	fair	30 in.	30 in.
★★★★	$\times$ <i>superbum</i> 'Nordlicht'	single	4 in.	late Jun-mid Aug	good	30 in.	30 in.
★★	$\times$ <i>superbum</i> 'Polaris'	single	4 in.	mid Jun-late Jul	good	24 in.	20 in.
★★★★	$\times$ <i>superbum</i> 'Rijnsburg Glory'	single	3½ in.	late May-mid Jul	excellent	28 in.	28 in.
★★	$\times$ <i>superbum</i> 'Silberprinzesschen'	single	3 in.	late Jun-early Aug	good	15 in.	18 in.
★★	$\times$ <i>superbum</i> 'Snow Lady'	single to semidouble	2½ in.	late Jun-late Aug	good	26 in.	22 in.
★★★★	$\times$ <i>superbum</i> 'Snowcap'	single	3 in.	late Jun-early Aug	good	20 in.	20 in.
★★★★	$\times$ <i>superbum</i> 'Snowdrift'	frilly double	3½ in.	late Jun-early Aug	excellent	34 in.	36 in.
★★	$\times$ <i>superbum</i> 'Sonnenschein'	single	3½ in.	late Jun-early Aug	fair	35 in.	34 in.
★★	$\times$ <i>superbum</i> 'Starburst'	single	3½ in.	late Jun-late Aug	good	33 in.	32 in.
★★★	$\times$ <i>superbum</i> 'Sunnyside Up'	crested	3½ in.	late Jun-early Aug	good	36 in.	33 in.
★★★★	$\times$ <i>superbum</i> 'Supra'	single	3½ in.	late Jun-late Aug	excellent	39 in.	34 in.
★★★★	$\times$ <i>superbum</i> 'Switzerland'	single	3½ in.	late Jun-early Sep	excellent	32 in.	30 in.
★★★★	$\times$ <i>superbum</i> 'T.E. Killin'	crested	3½ in.	late Jun-early Aug	good	24 in.	30 in.
★★★	$\times$ <i>superbum</i> 'Tinkerbelle'	single	2½ in.	late Jun-early Aug	excellent	16 in.	24 in.
★★★★	$\times$ <i>superbum</i> 'White Knight'	single	4 in.	early Jun-late Aug	excellent	24 in.	30 in.
★★★	$\times$ <i>superbum</i> 'Wirral Pride'	crested	3 in.	late Jun-early Aug	good	36 in.	30 in.
★★★★★	<i>vulgare</i> 'Filigran'	single	2 in.	mid May-early Jul	excellent	26 in.	30 in.
★★★★★	<i>vulgare</i> 'Maikönigin'	single	3 in.	late May-late Jul	excellent	36 in.	36 in.

Overall ratings: ★★★★★ excellent, ★★★★ good, ★★★ fair, ★★ poor.

¹Flower coverage ratings: excellent 80-100%; good 60-80%; fair 40-60%; poor <40%.



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Leucanthemum vulgare 'Maikönigin'

tivars began blooming in May, but 'Filigran' typically bloomed two weeks earlier.

Performance Summary

Shasta daisies are generally strong bloomers over a long period. The majority of taxa exhibited excellent (80% to 100%) to good (60% to 80%) flower production at peak bloom, roughly three to four weeks after the first flowers opened. The high levels of flower production were often maintained for several weeks following peak bloom, eventually tapering off to sporadic bloom up to the end of the flowering period. *Leucanthemum vulgare* 'Filigran' and 'Maikönigin', and *L. xsuperbum* 'Rijnsburg' were first to bloom each year, beginning as early as May 15. 'White Knight' always bloomed in early June, approximately one month ahead of most Shasta daisy cultivars.

Bloom dates were fairly consistent over the course of the evaluation period, except in 2004 when a number of *Leucanthemum*



Carol Freeman

Leucanthemum xsuperbum 'Becky'

xsuperbum cultivars flowered two to three weeks earlier than usual. Temperatures above 90 degrees Fahrenheit in early June likely contributed to the precocious bloom dates. The highest temperatures in other trial years were typically recorded in late June, late July, or late August (see Table 2). Among the taxa that bloomed earlier in 2004 were 'Alaska', 'Amelia', 'Beauté Nivelloise', 'Becky', 'Exhibition', 'Fluffy', 'Snow Lady', 'Snowdrift', 'Starburst', 'Supra', 'T.E. Killin', and 'Tinkerbelle'. Repeat bloom was uncommon, but occasionally flowers were observed on a number of cultivars beginning several weeks after the primary bloom period ended.

All taxa in the trial had white ray florets, with the exception of 'Cobham Gold' and 'Sonnenschein', which had creamy to light yellow rays. Flowers were predominantly single, although flower forms ranged from crested to semidouble to fully double. Variations in flower form and size were noted for 'Exhibition', 'Snow Lady',

and 'Snowdrift', which were grown from seed. The flowers of 'Snowdrift' were particularly variable, ranging from single to double with short, curly rays.

Erect stems and robust plant habits during the bloom period were commonly observed for the majority of taxa. No taxon seemed predisposed to floppiness, but weak or lodged stems were sometimes noted. Periodically, strong wind and heavy rainfall caused stems to flop or to be beaten down during the storm. The habits of affected plants rarely recovered their pre-storm appearance. Remarkably, tall-stemmed 'Amelia' and 'Becky' were not unduly damaged during these storms. It was generally observed that plant habit quality, and often plant health, declined following the primary bloom period. Plants were routinely sheared to the ground at this point to encourage new basal growth; however, no deadheading of unsightly, brown flowers occurred during the bloom period per trial guidelines against providing extra maintenance.

Few taxa displayed exceptional uniformity within their test groups; however, 'Aglaia', 'Becky', 'Filigran', 'Maikönigin', 'Rijnsburg Glory', 'Switzerland', and 'Wirral Pride' had reliably full habits with all stems the same height. Conversely, variability in habit and/or stem height was observed for cultivars that are presumably grown from seed; among this group are 'Amelia', 'Exhibition', 'Snowcap', 'Snowdrift', 'Supra', and 'White Knight'. In the case of 'Amelia', the habits were the same but stem height varied among the plants.

Unlike *Leucanthemum xsuperbum*, the habit of *L. vulgare* is rhizomatous; thus 'Filigran' and 'Maikönigin' formed mats of foliage. In addition, both cultivars produced abundant seedlings that not only added to the size of their plots, but also

Table 2: Weather Summary for 1999-2006

	1999	2000	2001	2002	2003	2004	2005	2006
Lowest temperature °F (°C)	-16 (-26)	-9 (-23)	-4 (-20)	-5 (-21)	-5 (-21)	-9 (-23)	-2 (-19)	-8 (-22)
Highest temperature °F (°C)	104 (40)	94 (34)	98 (37)	101 (38)	98 (37)	93 (34)	100 (38)	100 (38)
Number of days below 0°F (-18°C)	8	9	2	1	4	10	2	2
Number of days above 90°F (32°C)	16	8	19	30	15	5	24	15
Highest temperature date	7/31	8/31	6/29	7/21	8/22	6/6	6/24	7/31
Length of growing season days ^a	175	177	171	146	150	155	158	143
Last frost date	4/19	4/12	4/19	5/21	5/4	5/3	5/4	5/7
First frost date	10/20	10/7	10/7	10/14	10/1	10/5	10/23	10/12
Annual rainfall in inches (cm) ^b	36.5 (92.7)	43.5 (110.5)	44.3 (112.5)	33.6 (85.3)	31.7 (80.5)	35.5 (90.2)	24.4 (61.9)	42.5 (107.9)
Annual snowfall in inches (cm) ^c	41.9 (106.4)	56.5 (143.5)	10.9 (27.7)	37.6 (95.5)	15.6 (39.6)	27.2 (69.1)	44.4 (112.7)	23.4 (59.4)

^aAverage length of growing season is 158 days.

^bAverage rainfall is 35.8 inches (90.9 cm).

^cAverage snowfall is 38.1 inches (96.8 cm).

Data collected at Chicago Botanic Garden weather station.

Latitude: 41°51'N. Longitude: 87°37'W. Altitude: 578.74 ft. (176.4m).



Carol Freeman

Leucanthemum xsuperbum 'Snowdrift'

Jenny Lee

Leucanthemum xsuperbum 'Wirral Pride'

Jenny Lee

Leucanthemum 'Beauté Nivelloise'

popped up in adjacent plots. In our trial, *L. xsuperbum* 'Rijnsburg Glory' was rhizomatous with a floral display similar to *L. vulgare*. It is listed in Table 1 in spite of a questionable identity. Seedlings of *L. xsuperbum* and *L. vulgare* were observed, particularly in the third and fourth year of the trial, but could not be attributed to any specific taxon.

Shasta daisy is often considered a short-lived perennial, especially when grown in heavy or wet soils. In our trial, most taxa survived the four-year evaluation without crown injury, plant loss, or diminished vigor. However, a number of taxa died of root rot in the first year of the trial, including 'Alaska', 'Barbara Bush', 'Cobham Gold', 'Crazy Daisy', 'Dwarf Snow Lady', 'Esther Read', 'Polaris', and 'Snow Lady'. These taxa were replaced the next spring, except for 'Barbara Bush', 'Dwarf Snow Lady', and 'Esther Read', which were unable to be acquired again. Subsequently, the replacement plants of 'Cobham Gold' and 'Crazy Daisy' died during the second summer; therefore, these taxa never went through a winter in the trial. Most plants of 'Sonnenschein' succumbed to excessive moisture over successive summers, but a few of the plants lived through one or more winters.

Partial crown loss or death of plants during winter was a common cause for low ratings. However, winter injury was gener-

ally attributed to moisture issues related to the heavy clay content of the soil rather than cold temperatures. The *Leucanthemum xsuperbum* cultivars that suffered minor to moderate crown loss in one or more winters included 'Agliaia', 'Exhibition', 'Hebron Hardy', 'Nordlicht', 'Snowdrift', 'Supra', 'T.E. Killin', and 'Wirral Pride'. Taxa with moderate crown damage and/or minor plant losses included 'Beauté Nivelloise', 'Sunnyside Up', and 'Tinkerbelle'. Poorly rated taxa with moderate to severe crown damage and/or major plant losses in one or more winters included 'Alaska', 'Fluffy', 'Marconi', 'Polaris', 'Silberprinzesschen', 'Snow Lady', 'Starburst', and 'Summer Snowball'. Each taxon with documented losses in winter had at least one plant that survived to complete a full evaluation term; only 'Summer Snowball' died during winter after a single growing season and was not retested.

Summary

Approximately half of the daisies in the trial received high ratings based on heavy flower production, strong habits and adaptability to the soil and conditions of the test site. The top-rated daisies, including *Leucanthemum xsuperbum* 'Amelia' and 'Becky', and *L. vulgare* 'Filigran' and 'Maikönigin' were especially floriferous, robust and without injury or plant loss.

Correct culture is crucial for a strong

performance and longevity in the garden. A rich, well-drained soil will ensure that Shasta daisies receive the nutrients they need, while guarding against wet conditions that may shorten their life. Cold hardiness was not a problem in the trial; instead, some Shasta daisies suffered significant crown damage and plant losses due to excessive soil moisture and/or poor drainage during winter months. Despite high ratings, 'Filigran' and 'Maikönigin' are cautiously recommended because of rhizomatous habits and prolific seed production.

'Becky' is perhaps the most popular Shasta daisy in the United States today because of its sturdy habit and garden dependability. But there are many old and new cultivars in a variety of floral habits and plant sizes, from short to tall, and single-flowered to frilly double flowers. The distinctive white and yellow flowers evoke memories of childhood games and daisy chains as they brighten gardens and naturalized landscapes all summer long.

References

- Heger, M. and J. Whitman. 1998. *Growing Perennials in Cold Climates*. Chicago, IL: Contemporary Books.
- RHS Plant Finder Online. <http://www.rhs.org.uk/rhsplantfinder/plantfinder.asp>.
- Rice, G., editor-in-chief. 2006. *American Horticultural Society Encyclopedia of Perennials*. New York, NY: DK Publishing, Inc.

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